

REMARKS

Claims 1, 5, 7, 17, 18, 36 and 38 are pending in the current application. Claim 1 is in independent form. No new matter has been added. In view of the following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

Applicants note that the Examiner has not indicated whether the drawings filed on September 28, 2001 are accepted or objected to by the Examiner. As there is no discussion in the Detailed Action indicating that the drawings are objected to, Applicants will assume that the drawings are acceptable unless indicated otherwise in the next Patent Office communication.

I. 35 U.S.C. §103(a) REJECTION – MARTIN AND ARNDT

Claims 1, 5, 7, 17, 18, 36 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Martin, U.S. Patent No. 5,796,848 in view of Arndt et al. (hereinafter ‘Arndt’), U.S. Patent No. 6,421,448. Applicants respectfully traverse the rejection.

A. INDEPENDENT CLAIM 1

Independent claim 1 recites a microphone assembly including a “filter means in the signal path between the pre-amplifier and the sigma-delta modulator, the filter means preventing low frequency components from reaching the sigma-delta modulator.” Applicants submit that none of these features of independent claim 1 are taught or disclosed in the art cited by the Examiner.

i. MARTIN IN VIEW OF ARNDT

As acknowledged by the Examiner, Applicants submit that Martin fails to teach or disclose that “...the microphone assembly further comprises filter means in the signal path between the pre-amplifier and the sigma-delta modulator to prevent low frequency components from reaching the sigma-delta modulator.” Action, p. 3.

Applicants further submit that Arndt fails to remedy the deficiency of Martin with respect to independent claim 1. Namely, the Examiner asserts that Arndt discloses “...a high pass filter means (3) in the signal path between the pre-amplifier (12) and the digital signal processing unit 5 to prevent low frequency components from reaching the digital signal processing unit...” Action, p. 3. Applicants respectfully disagree.

Arndt is directed to a hearing aid device having a directional microphone characteristic produced by at least two microphones of the same type that deviate from one another in their signal transmission behavior. Arndt states that in order for a high-pass filter to reach its limit frequency “...each of the microphones used has a small hole in its membrane, causing the limit frequency—dependent on the diameter of this hole in the membrane—to be shifted to higher values. This shift is necessary to suppress interference signals of lower frequency...” Arndt, col. 2, lines 42-49 (emphasis added). Therefore, Arndt merely states that a small hole in the membrane of each microphone causes the shift, not the high-pass filters as suggested by the Examiner.

Even assuming *arguendo* that Arndt recognizes an advantage to preventing low frequency components from reaching the signal processing unit 5 (which Applicants do not agree), Arndt’s solution to the problem is different than the claimed invention. That is, Arndt teaches one to form a small hole in the membrane of each microphone, not a “filter means in the signal path between the pre-amplifier and the sigma-delta modulator” as recited in independent claim 1.

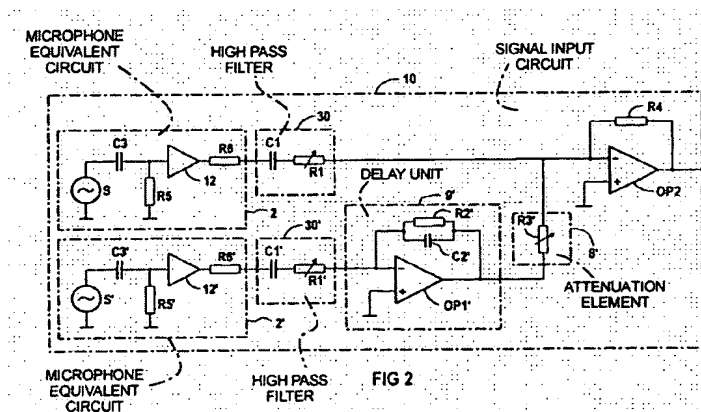
In fact, Arndt teaches,

The two high-pass filters 30 and 30' subsequent to the two microphones 2 and 2' respectively contain a coupling capacitor C1 and C1' and a resistor R1 or R1' ... In accordance with the invention the two high-pass filters 30 and 30' are matched in their limit frequencies to the limit frequencies of the preceding microphones in contrast to known circuits. For this purposes, in the exemplary embodiment, the values of the programmable resistors R1 and R1' are selected such that the limit frequency of the microphone 2 corresponds to the limit frequency of the high-pass filter 30' and the limit frequency of the microphone 2' corresponds to the limit frequency of the high-pass filter 30. Thus, in a simple manner, it is possible to balance manufacturing related variation of the limit frequencies of the microphones used.

Arndt, col. 4, lines 35-51.

Therefore, the high-pass filters 30 and 30' of Arndt are connected to control the combined directivity pattern of the two microphones. Thus, absent inappropriate hindsight, Applicants submit that one of ordinary skill in the art would not be motivated by Arndt to place a filter means in the signal path between the pre-amplifier and the sigma-delta modulator of Martin to prevent low frequency components from reaching the sigma-delta modulator as similarly recited in independent claim 1.

In view of the functional distinctions (discussed above) between the high-pass filters of Arndt and the claimed invention, Applicants submit that neither Martin or Arndt teaches a filter means within the microphone assembly casing. As shown in Fig. 2 of Arndt (reproduced below), the high-pass filters 30 and 30' are located outside of the microphones 2 and 2'.



As such, Applicants submit that the "filter means" of independent claim 1 fails to structurally and functionally read upon the high-pass filters 30 and 30' of Arndt.

Accordingly, Applicants submit that Martin in view of Arndt fails to teach or disclose "the microphone assembly further comprises filter means in the signal path between the pre-amplifier and the sigma-delta modulator, the filter means preventing low frequency components from reaching the sigma-delta modulator" as recited in independent claim 1.

CONCLUSION

Accordingly, in view of the above, reconsideration of the rejection and allowance of each of claims 1, 5, 7, 17, 18, 36 and 38 in connection with the present application is earnestly solicited.

Should there be any matters that need to be resolved in the present application; the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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